

Applicant: Samir MAHFOUDH
Docket No. R.308098
Preliminary Amdt.

AMENDMENTS TO THE SPECIFICATION:

Page 1, please add the following new paragraphs before paragraph [0001]:

[0000.2] CROSS-REFERENCE TO RELATED APPLICATION

[0000.4] This application is a 35 USC 371 application of PCT/EP 2005/050296 filed on January 24, 2005.

[0000.6] BACKGROUND OF THE INVENTION

Please replace paragraph [0001] with the following amended paragraph:

[0001] Prior Art **Field of the Invention**

Please replace paragraph [0002] with the following amended paragraph:

[0002] The invention is ~~based on a~~ directed to an improved method for producing a winding support for an electrical machine ~~as generically defined by the preamble to claim 1.~~ ~~A winding support of this kind has a plurality of pole teeth. Between them, adjacent pole teeth define at least one slot, into which at least one winding each is inserted. Even before the slots are filled with the winding, the pole teeth are in the later installation position relative to one another for installation in the electrical machine. The winding is also inserted in this installation position. As a result, copper factor that the winding support or the electrical machine can maximally have is already defined. The copper factor is also an indicator for the motor power.~~

Please add the following new paragraph after paragraph [0002]:

[0002.4] Description of the Prior Art

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Please add the following new paragraph after paragraph [0002.4]:

[0002.6] A winding support of the type with which this invention is concerned has a plurality of pole teeth between which adjacent pole teeth define at least one slot, into which at least one winding each is inserted. Even before the slots are filled with the winding, the pole teeth are in the later installation position relative to one another for installation in the electrical machine. The winding is also inserted in this installation position. As a result, the copper factor that the winding support or the electrical machine can maximally have is already defined. The copper factor is also an indicator for the motor power.

Please replace paragraph [0003] with the following amended paragraph:

[0003] Advantages of the Invention

SUMMARY AND ADVANTAGES OF THE INVENTION

Please replace paragraph [0004] with the following amended paragraph:

[0004] The method of the invention for producing a winding support for an electrical machine ~~having the definitive characteristics of claim 1~~ has the advantage that compared to a winding support of comparable structural size, greater power can be attained because of the higher copper factor. To that end, a method for producing a winding support for an electrical machine is provided, in which the winding support has a plurality of pole teeth, and adjacent pole teeth between them define at least one slot, which is filled with at least one winding each, and the pole teeth, before being filled, have an installation position relative to one another for installation into the electrical machine, and at least one of the pole teeth, which define a slot, is bent, before the filling of the at least one slot with the winding, by a force action into a filling position, so that the cross- sectional area of the at least one slot that it

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defines is increased, and then the winding is placed in the slot, and after that next, the at least one of the adjacent pole teeth is put out of the filling position into the installation position.

Page 4, please replace paragraph [0018] with the following amended paragraph:

[0018] An additional improvement in the apparatus is attained if the apparatus has at least one device for simultaneously bending two adjacent pole teeth. Thus a slot can be bent open even wider.

Page 5, please delete paragraph [0020].

Please replace paragraph [0021] with the following amended paragraph:

[0021] Drawing **BRIEF DESCRIPTION OF THE DRAWINGS**

Please replace paragraph [0022] with the following amended paragraph:

[0022] One exemplary embodiment is ~~shown in the drawing and~~ described in further detail in the ensuing description. Shown are herein below, in conjunction with the drawings, in which:

Please replace paragraph [0023] with the following amended paragraph:

[0023] Fig. 1[[,]] is an electrical machine in cross section;

Please replace paragraph [0027] with the following amended paragraph:

[0027] Description of the Exemplary Embodiment

DESCRIPTION OF THE PREFERRED EMBODIMENTS

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Page 6, please replace paragraph [0029] with the following amended paragraph:

[0029] An armature 14 is disposed in the housing 12 and is located on a shaft 16. The armature 14, with or without the shaft 16, thus acts as a winding support for an electrical machine 10. The armature 14 is produced as a lamination packet made of sheet metal or of so-called SMC (soft magnetic composite) material. In a sheet-metal lamination packet, the thickness of a single sheet (represented by reference numeral 14) [[is]] may be 0.5 mm, which can include deviations within the range of tenths of millimeters.

Please replace paragraph [0030] with the following amended paragraph:

[0030] The armature 14 has a plurality of windings 18. For the sake of greater clarity, only one winding 18 is shown schematically in Fig. 1. A plurality of pole teeth 20 protrude radially outward from a circular portion 19 of the armature 14 and define or form slots [[21]] for receiving the windings 18. In the present exemplary embodiment, there are specifically eight pole teeth 201, 202, 203, 204, 205, 206, 207, 208. Correspondingly, there are also eight slots 211, 212, 213, 214, 215, 216, 217, 218. Naturally still other numbers are possible. The pole teeth 20 each include one tooth neck 22, which originates at the portion 19, and one tooth head 24, which adjoins the tooth neck 22. Between the tooth necks 22, the slot base 25 of a slot 21 is embodied on the outer circumference of each portion 19.

Please replace paragraph [0031] with the following amended paragraph:

[0031] The transition from the slot base 25 to the tooth necks 22 or pole teeth 20 is embodied as essentially sharp-angled or sharp-edged; that is, it is not, as is usually done, rounded. In the ideal case, the transition is entirely sharp-edged. However, a transition radius of less than 1 mm is still acceptable, and a transition radius of less than 0.5 mm is to be preferred.

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Preferably, the transition is indeed sharp-edged. A radius which is less than the thickness of a single sheet (also reference numeral 14) of the armature 14, however, still leads to good results in bending. The thickness is typically approximately 0.5 mm, for example, but it may amount to a few tenths of a millimeter more or less.

Page 10, please replace paragraph [0042] with the following amended paragraph:

[0042] After the withdrawal of the force action, the pole teeth 20 return to their installation position. The reason for this is that the pole teeth 20 that are each bent are bent in the elastic **region range**, and after the insertion of the winding 18, by withdrawal of the force action, they return to the installation position because of their intrinsic elasticity, or are returned to the installation position because of their intrinsic elasticity.

Please replace paragraph [0043] with the following amended paragraph:

[0043] Alternatively, it is also possible for the pole teeth 20 that are bent open to be bent in the plastic **region range** instead of the elastic **region range** - or with some components in the elastic and plastic **region range** - and after the insertion of the winding 18 to be returned by plastic deformation to the installation position by a reversal of the force action 36. Since as a result of the bending open in the plastic **region range** the pole teeth 20 are spread farther apart than in the elastic **region range**, the cross-sectional area of the slots 21 is also greater in each case, and as a result there is space for more turns in the winding 18.

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Page 12, please replace paragraph [0047] with the following amended paragraph:

[0047] Here, the windings 18 have been successively filled in the order of 181, 182, 183, 184, 185, 186, [[186]] 187, 188. In the process, both pole teeth 20 defining one slot 21 have been bent open. The advantage here is that the slot 21 can be bent open wider, which allows a higher filling position.

Page 13, please replace paragraph [0050] with the following amended paragraph:

[0050] In Fig. 4, it is shown how the pole teeth 201, 208 and 203, 204 are bent open with two pairs of pliers 38, 40 of an apparatus [[42]] 44, shown only symbolically and as a fraction or in part, for performing the described method. The apparatus [[42]] 44 should have at least one device 38, 40 for bending at least one pole tooth 20, because it is also possible for only the pole tooth 201, for instance, to be bent. Preferably, however, the apparatus [[42]] 44 has at least one device in the form for instance of a part such as a hook of the pliers 38 or 40 for bending two adjacent pole teeth 201 and 208 of the slot 211. It is even better, however, if the apparatus [[42]] 44 - as shown - has at least one device 38, 40 which bends two pole teeth 201, 208 and 203, 204 of two respective slots 211 and 214, into which paired slots one winding 18 is placed. The pliers 38, 40 may also bend open the pairs of pole teeth 201, 207 and 203, 204, and the pole teeth 204 and 208 remain straight, so that one winding 18 can be inserted into the pairs of slots 211, 214 and 218, 215. Naturally the other slots 21 are then wound in succession, as described above. The fixation of the armature 14 can be done for instance via the shaft 16.

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Please add the following new paragraph after paragraph [0051]:

[0052] The foregoing relates to a preferred exemplary embodiment of the invention, it being understood that other variants and embodiments thereof are possible within the spirit and scope of the invention, the latter being defined by the appended claims.